Moduli of connections on gerbes and Courant algebroids

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Abstract:

Gerbes and higher gerbes are categorified versions of line bundles. They provide geometric models for the higher (differential) cohomology groups of the manifold they live on. Connections on a gerbe consist of pairs (A, B) of locally defined 1- and 2-forms. In higher geometry, these are widely seen as a model for the B-field in string theory. The 2-group of automorphisms of the gerbe acts on the pairs (A, B) as gauge transformations, giving rise to a moduli stack of B-fields. In generalised geometry, however, the B-field is modelled using splittings of a Courant algebroid, constructed from the gerbe G and a fixed choice of local 1-forms A. The 2-group of automorphisms of the pair (G, A) acts on these splittings, giving rise to another candidate for the moduli stack of B-fields. In the above two set-ups, the `B-fields' as well as their gauge transformations are genuinely different. Nevertheless, in this talk I will present comparison results for the resulting moduli stacks. This is joint work with Carlos Shahbazi.